

SIMTEK6373

IN THE UNITED STATES PATENT OFFICE

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In re Application
Tadashi Takano
Susumu Ando

App. No.: 10/064363
Filed: July 7, 2002
Conf. No.: 2097
Title: ARMATURE FOR REVOLVING-
FIELD ELECTRIC MACHINE
Examiner: G. Perez
Art Unit: 2834

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APPELLANTS' BRIEF

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences the outcome of which would have an effect on or be affected by the decision in this appeal.

REAL PARTY IN INTEREST

In addition to the appellant inventors, a real party in interest is their assignee, Kabushiki Kaisha Moric, a Japanese company.

STATUS OF CLAIMS

Claims 1 and 4-6 remain in this application and are all before the Board on appeal. A clean copy of these claims appears in the appendix to this brief.

STATUS OF AMENDMENTS

No amendment was filed in response to the Final Rejection so all claims on appeal are as finally rejected.

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APPELLANTS' INVENTION

Appellants' invention relates to an armature construction for a rotating electrical machine and more particularly to an insulating bobbin arrangement therefore that protects the wire winding needle and wire from damage during the winding of an electrical coil around the pole teeth of the armature.

In one common method of winding these coils the winding needle is passed into a gap formed by projecting end portions of the pole teeth and the needle end from which the wire to be wound is fed is moved in a path around the pole tooth to deposit the wire in an insulator that encircles the pole tooth being wound. The movement of the needle in this confined area gives rise to the possibility of damage to already wound wire and its insulation and the wire and needle end may be damaged by contact with the projecting pole teeth ends.

Thus to protect both the wire and the needle the insulating bobbin is provided with extensions as shown in detail in FIGS. 18- 23 that avoid this potential damage, without obstructing the path that the needle takes during the winding operation. It will be seen from these figures that the insulator portion that provides the protection is spaced from both the wire and the winding nozzle, but is interposed between them and the pole teeth extensions.

The construction is described in more detail under the appropriate heading in the specification by particular reference to the figures of drawings.

ISSUES BEFORE THE BOARD

The sole issue before the Board is whether the subject matter of the claims is obvious under 35 USC 103(A) in view of Uchida et al 5,763,978 (Uchida et al)

GROUPING OF THE CLAIMS

No two of the claims stand or fall together. That is the patentability of each of the claims will be argued separately.

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APPELLANTS' ARGUMENTS

Although a casual look at the Uchida et al reference and appellants' disclosure may offer some similarities, the structures are in fact quite different and perform exactly opposite purposes. To use its own words Uchida et al has the goal of providing "a main insulating section having boundary lines on either side thereof and a region capable of substantially covering the whole inner wall surface of a slot extending parallel to the axial direction of the stator by extending substantially parallel to the axial direction of the stator, and auxiliary insulating sections integrally extending from the individual boundary lines on either side of the main insulating section, in directions perpendicular to the axial direction of the stator, and having the respective distal end edges thereof butting on or overlapping each other in the center of the slot opening, thereby substantially closing the slot opening" (Column 2, lines 40-50). This closing of the slot opening however is formed from "a material such that a region thereof or a region in the vicinity thereof is deformed to open the slot opening partially when an external force of a magnitude not lower than a predetermined level is applied to the region and is restored to the original posture thereof to close the slot opening when the external force is removed" (Column 2, lines 52-58).

Thus the insulating material will contact both the wire being wound and the needle during the winding operation, assuming the same type of winding apparatus as used by appellants were used by Uchida et al. This is in direct contradistinction to what appellants teach and desire.

This distinction is fully stressed in independent claim 1 which states "insulator portions extending at least along the side of said enlargements facing said circular core for protecting windings formed by a winding needle from damage by the winding needle". This clearly requires spacing from the windings which does not occur in Uchida et al.

Thus both the purposes and structures employed by appellants and the reference are different. Although the Examiner recognizes that "Uchida et al do not expressly write that the wires are protected" one skilled in the art would understand that the wires are protected. How can they be protected when the wires are being rubbed upon during the winding operation?

Claim 4 depends on claim 1 and further distinguishes over the reference in calling for "the insulator portions have a greater thickness than the insulating bobbin leg portions". The Examiner claims that this is shown in FIG. 2, but it is not. Uchida et al's insulators have the same thickness through out. He would not make these portions thicker as he wants to maintain flexibility, as noted above. For reference this feature is shown in appellants embodiments of FIGS. 18, 19 and 20.

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Claim 5 depends on claim 1 and further distinguishes over Uchida et al in calling for the insulator portions to define "an open slot that receives the winding nozzle tip". Again the Examiner makes reference to FIG. 2 but this only shows the deformation caused by the wire and completely fails to show any nozzle tip. This claim reads on all of the embodiments of FIGS. 18-23.

Claim 6 depends on claim 5 and further requires the open slot, lacking in Uchida et al, to be "formed between portions of the insulator portions that define an opening smaller than the diameter of the received winding nozzle tip". Thus this claim is specific to FIGS. 19 and 22, constructions not addressed by the Examiner for obvious reasons.

Thus it is submitted that the Examiner has totally failed to make out a prima facie case and is relying on a reference that is intended to perform a totally different function utilizing a totally different structure. Reversal of his rejection is therefore most respectfully requested.

Respectfully submitted:



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APPENDIX
CLEAN COPY OF THE CLAIMS ON APPEAL

1. An armature for a rotating machine having a circular core of a magnetic material and a plurality of magnetic pole teeth extending radially from said circular core and terminating at terminal ends spaced from said circular core, each of said magnetic pole teeth defining a core and an enlargement formed at the terminal end of said core, to define slots formed between adjacent magnetic pole teeth, each of said slots having a mouth formed between adjacent enlargements, an insulating bobbin having a circular portion lying on one side of said circular core and leg portions that extend for the length of said pole teeth at least on the sides of said slots and insulator portions extending at least along the side of said enlargements facing said circular core for protecting windings formed by a winding needle from damage by the winding needle.
4. An armature for a rotating machine as set forth in claim 1, wherein the insulator portions have a greater thickness than the insulating bobbin leg portions.
5. An armature for a rotating machine as set forth in claim 1, wherein the insulator portions define an open slot that receives the winding nozzle tip.
6. An armature for a rotating machine as set forth in claim 5, wherein the open slot is formed between portions of the insulator portions that define an opening smaller than the diameter of the received winding nozzle tip.